

# Notice of Allowability

Application No.

10/628,262

Examiner

Robert R. Koehler

Applicant(s)

CAVALLOTTI ET AL.

Art Unit

1775

## -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Preliminary Amendment filed on July 29, 2003.
2. ☒ The allowed claim(s) is/are 17-29.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☒ Certified copies of the priority documents have been received in Application No. 09/137,072.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

### Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date 10302003
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413), Paper No./Mail Date 07142004.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

*Robert R. Koehler*

ROBERT R. KOEHLER  
PRIMARY EXAMINER  
ART UNIT 1775



**DETAILED ACTION*****Informal Examiner's Amendment***

By way of this informal Examiner's amendment, the following change is made in the Preliminary Amendment filed on July 29, 2003 because the new subsection entitled "REFERENCE TO RELATED APPLICATION" does not contain the correct U.S. patent number. This change in the amended portion of page 1 of the specification is made only for the purpose of providing the current status of allowed patent application number 09/838,876.

In line two of the subsection "REFERENCE TO RELATED APPLICATION," delete the wording "(number not yet assigned)" and insert in its place --number 6,635,123-- .

***Examiner's Amendment***

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

By way of this Examiner's amendment, the following changes are made in the specification.

- A.** On page 2, line 2, delete "vapour" and insert in its place --vapor-- .
- B.** On page 3, line 3, delete "4,373,656" and insert in its place --4,343,660-- .
- C.** On page 3, line 11, delete the hand-printed "processing" and insert --processing-- immediately after "temperature".
- D.** On page 4, line 2, delete the hand-printed "herein".
- E.** On page 4, line 2, delete "[in Claim 1]" and insert in its place --herein-- .
- F.** On page 5, line 4, delete the hand-printed "molar concentration".
- G.** On page 5, line 4, delete "[mol]" and insert in its place --molar concentration-- .
- H.** On page 5, line 5, delete the hand-printed "molar concentration".



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- I.** On page 5, line 5, delete "[mol]" and insert in its place --molar concentration-- .
- J.** On page 5, line 14, delete the hand-printed "pH".
- K.** On page 5, line 14, delete "PH" and insert in its place --pH-- .
- L.** On page 6, line 3, insert the phrase --, such as a nonionic surfactant,-- immediately after the word "surfactant".
- M.** On page 6, line 28, delete the hand-printed " $K_a$ ".
- N.** On page 6, line 28, delete "Kalfa" and insert in its place -- $K_a$ -- .
- O.** On page 9, line 5, delete the hand-printed "such alloys".

Authorization for this examiner's amendment was given in a telephone interview with John A. Evans, applicants' attorney, on July 14, 2004.

***Allowable Subject Matter***

Claims 17 to 29 are allowed.

The following is an examiner's statement of reasons for allowance: The prior art does not teach, suggest, or disclose applicants' claimed semiconductor device comprising a semiconductor substrate, at least one copper interconnect pad formed on the substrate, and a layer of a zinc complex formed on the at least one interconnect pad wherein the zinc complex must contain copper ions, zinc ions, an organic acid, and an azole. Although the prior art does teach the usage of azole compounds for the treatment of copper surfaces, the Examiner believes that the claimed combination of copper ions, zinc ions, and an azole compound is not taught or reasonably suggested by the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."



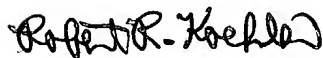
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Robert Koehler whose telephone number is **(571) 272-1536**. The Examiner can normally be reached on Tuesday to Friday from 9:30 AM to 7:00 PM. The Examiner can also be reached on alternate Mondays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Deborah Jones, can be reached on **(571) 272-1535**. The fax phone number for the organization where this application or proceeding is assigned is **703-872-9306**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).



**ROBERT R. KOEHLER  
PRIMARY EXAMINER**

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July 16, 2004**